CDC
STD Prevention

Ready-to-Use

STD Curriculum for Clinical Educators

Pelvic Inflammatory Disease (PID) Module

Target Audience - Faculty in clinical education programs, including those programs that train advanced practice nurses, physician assistants, and physicians

Contents - The following resources are provided in this module:

- **Faculty Notes** (Microsoft Word and Adobe Acrobat formats) - Includes notes that correspond to the slide presentation, a case study with discussion points, and test questions with answers
- **Slide Presentation** (Microsoft PowerPoint and Adobe Acrobat formats)
- **Student Handouts**
  - **Case Study** (Microsoft Word format)
  - **Test Questions** (Microsoft Word format)
  - **Slides Handout** (Adobe Acrobat format)
  - **Resources** (Microsoft Word format)

Suggested Time Allowance - The approximate time needed to present this module is 60-90 minutes.

These materials were developed by the Program and Training Branch, Division of STD Prevention, CDC. They are Based on the curriculum developed by the National Network of STD/HIV Prevention Training Centers (NNPTC) which includes recommendations from the 2006 CDC STD Treatment Guidelines

Information on the NNPTC can be Accessed at:
http://depts.washington.edu/nnptc/index.html

The 2006 CDC STD Treatment Guidelines Can be accessed or ordered online at:
http://www.cdc.gov/std/treatment/

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Pelvic Inflammatory Disease (PID)

[Slide 2]

Learning Objectives

Upon completion of this content, the learner will be able to:

1. Describe the epidemiology of PID in the United States.
2. Describe the pathogenesis of PID.
3. Discuss the clinical manifestations of PID.
4. Identify the clinical criteria used in the diagnosis of PID.
5. List CDC-recommended treatment regimens for PID.
6. Summarize appropriate prevention counseling messages for a patient with PID.
7. Describe public health measures to prevent PID.

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Lessons

I. Epidemiology: Disease in the U.S.
II. Pathogenesis
III. Clinical manifestations
IV. Diagnosis
V. Patient management
VI. Prevention

[Slide 4]

I. Epidemiology: Disease in the U.S.

[Slide 5]

A. Definition: PID is a clinical syndrome associated with ascending spread of microorganisms from the vagina or cervix to the endometrium, fallopian tubes, ovaries, and contiguous structures. PID comprises a spectrum of inflammatory disorders including any combination of endometritis (infection of the endometrium), salpingitis (infection of the fallopian tubes), tubo-ovarian abscess, or pelvic peritonitis (infection of the peritoneum). PID may be asymptomatic ("silent") or overt with mild to severe symptoms.

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B. Pelvic Inflammatory Disease
   1. Occurs in approximately 1 million U.S. women annually.
   2. Annual cost exceeds $4.2 billion.
   3. No national surveillance or reporting requirements exist, and national estimates are limited by insensitive clinical diagnosis criteria.
   4. Rates of hospitalization have decreased 16% from 1985-2001. Ambulatory data also support a decrease in PID rates. PID cases are more likely to be diagnosed in ambulatory settings.
   5. The reported number of initial visits to physicians' offices for PID generally declined from 1998 and 2007.

[Slide 7]
Graph: Pelvic Inflammatory Disease--hospitalization of women 15-44 years of age: United States, 1980-2006

[Slide 8]
Graph: Pelvic Inflammatory Disease--initial visits to physicians' offices by women 15-44 years of age: United States, 1980-2007

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C. Risk factors
    1. Adolescence is a risk factor because of increased age-related chlamydia and gonorrhea rates and the presence of cervical cellularity (ectopy) which allows for adherence of infectious organisms. When gonorrhea and chlamydia are controlled for, there is no elevated risk for adolescents.
    2. History of PID: damaged fallopian tube mucosa may be more susceptible to recurrent infection
    3. History of gonorrhea or chlamydia: increased likelihood of recurrent gonorrhea or chlamydia
    4. Male partners with gonorrhea, chlamydia, or multiple partners
    5. Current douching: contributes to vaginal flora changes, epithelial damage, and disruption of cervical mucous barrier
    6. Insertion of IUD within the first 21 days of placement; after 21 days, risk returns to baseline
    7. Bacterial vaginosis has been associated with PID
    8. Demographics (socioeconomic status): may be related to access to care
    9. Oral contraceptive use: may increase the risk of cervical chlamydial infection because of cervical ectopy, but decreases the risk of clinically apparent symptomatic PID (mechanisms unclear). Oral contraceptives also cause thickening of cervical mucous which may be protective against lower genital tract organisms ascending into the upper genital tract.

[Slide 10]
Image: Normal cervix with ectopy

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II. Pathogenesis

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A. Microbial etiology
    1. Most cases of PID are polymicrobial.
    2. Most common pathogens:
        a) *N. gonorrhoeae*: recovered from cervix in 30%-80% of women with PID
        b) *C. trachomatis*: recovered from cervix in 20%-40% of women with PID; recovered from endometrium or tubes in a majority of women with cervical chlamydial infection. Especially associated with perihepatitis (Fitz-Hugh-Curtis syndrome—see Chlamydia module).

c) *N. gonorrhoeae* and *C. trachomatis* are present in combination in approximately 25%-75% of patients with PID; relative prevalence of these and other organisms depends on population studied.

3. Other microbes include:
   a) Aerobic Gram-negative rods (e.g., *E. coli*)
   b) Anaerobes (*Bacteroides* spp., *Prevotella* spp., *Peptostreptococcus* spp.); especially those associated with bacterial vaginosis
   c) *Mycoplasma genitalium*, ureaplasmas: have been isolated from the endometrium and fallopian tubes of women with PID
   d) Gram-positive organisms (S*treptococcus* spp.)

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B. Pathway of ascendant infection:
   cervicitis→endometritis→salpingitis/oophoritis/tubo-ovarian abscess→peritonitis
C. Intermittent ascent of microorganisms into the endometrial cavity may be a physiological phenomenon. Fate of organisms depends on viability, number, pathogenicity, and local defense mechanisms.
D. The response to ascending organisms is an inflammatory one that may lead to scarring of the tubes, subsequent infertility, ectopic pregnancy, or chronic pelvic pain. This scarring may occur even in women who do not report a history of PID symptoms.

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Image: Normal human fallopian tube tissue

A. Millions of tiny hair-like cilia line the fimbria and interior of the fallopian tubes. The cilia beat in waves hundreds of times a second catching the egg at ovulation and moving it through the tube to the uterine cavity. Other cells in the tube's endothelium nourish the egg and lubricate its path during its stay inside the fallopian tube. This electron micrograph illustrates these structures.

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Image: C*. trachomatis* infection (PID)

A. Results of inflammation by *C. trachomatis* with loss of cilia

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III. Clinical Manifestations

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PID classification: PID may be asymptomatic or subclinical (silent), or overt with either moderate or severe symptoms.

A. Subclinical, asymptomatic, or “silent PID”
   1. Occurs approximately 60% of the time; makes diagnosis and treatment problematic; women may not seek care
   2. Atypical presentation may include dyspareunia, irregular bleeding, urinary, or gastrointestinal symptoms.
B. Symptomatic or overt PID with moderate symptomatology

1. Occurs approximately 36% of the time; signs/symptoms include lower abdominal pain, cramping, dysuria, intermittent or post-coital bleeding, vaginal discharge, or fever.
2. Uterine tenderness or cervical motion pain or adnexal tenderness is present on a pelvic exam in most cases of moderate PID.

C. Symptomatic or overt PID with severe symptomatology
1. Occurs approximately 4% of the time; patients appear very ill with fever, chills, purulent vaginal discharge, nausea, vomiting, and elevated white blood cell count (WBC).
2. Other laboratory indicators such as erythrocyte sedimentation rate (ESR) and C-reactive protein (CRP) may also be elevated.

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D. Sequelae
1. Approximately 25% of women with a single episode of symptomatic PID will experience sequelae, including ectopic pregnancy, infertility, or chronic pelvic pain.
2. The risk of ectopic pregnancy is increased 6- to10-fold after PID.
3. Tubal infertility occurs in 8% of women after 1 episode of PID, in 20% of women after 2 episodes, and in 50% of women after 3 episodes.

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IV. Diagnosis

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A. CDC recommends empiric treatment of PID if these minimum criteria are met in the absence of any other explanation:
1. Uterine or adnexal tenderness (bilateral or unilateral), or
2. Cervical motion tenderness

B. Acute adnexal tenderness may be the most sensitive sign of upper genital tract infection. Under some circumstances, a clinician may choose to treat with even less specific finding. The general recommendation is to err on the side of over treatment, given the high incidence of adverse outcomes with untreated PID.

Discussion question: *Discuss sensitivity and specificity in clinical diagnosis*

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C. Additional criteria to increase specificity of PID diagnosis (but will decrease sensitivity)
1. Temperature >38.3°C (101° F)
2. Abnormal cervical or vaginal mucopurulent discharge
3. Presence of abundant numbers of WBCs on saline microscopy of vaginal secretions
4. Elevated erythrocyte sedimentation rate (ESR)
5. Elevated C-reactive protein (CRP)
6. Gonorrhea or chlamydia test positive

[Slide 22]
Image: Mucopurulent cervical discharge (positive swab test)

7. Most women with PID have either mucopurulent cervical discharge or evidence of WBCs on wet prep. If there are no WBCs found on the wet prep, the diagnosis of PID is unlikely.

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D. Other more specific criteria used in diagnosing PID include:
   1. Endometrial biopsy which shows histopathologic evidence of endometritis
   2. Transvaginal sonography or magnetic resonance imaging (MRI) (may demonstrate tubo-ovarian abscess [TOA] or thickened tubes with or without free pelvic fluid)
   3. Laparoscopy showing abnormalities consistent with PID. Laparoscopy is indicated for:
      a) Severe peritonitis to exclude ruptured tubal abscess or ruptured appendix
      b) Patients with mild signs in whom the diagnosis is unclear
      c) Patients who fail to respond to antibiotic therapy
      d) Percutaneous drainage of an abscess

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V. Patient Management

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General PID management considerations

A. Regimens must provide coverage of *N. gonorrhoeae*, *C. trachomatis*, anaerobes, Gram-negative facultative organisms, and streptococci. If bacterial vaginosis is present, anaerobic coverage is necessary.
B. Treatment should be instituted as early as possible to prevent long-term sequelae.

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C. Criteria for hospitalization of women with PID include:
   1. Inability to exclude surgical emergencies (i.e., appendicitis, ectopic pregnancy)
   2. Pregnancy
   3. Non-response to oral therapy. Failure to respond clinically to outpatient antimicrobial therapy within 48-72 hours.
   4. Inability to tolerate an outpatient oral regimen
   5. Severe illness, nausea and vomiting, or high fever
   6. Tubo-ovarian abscess
   7. Current immunodeficiency (HIV infection with low CD4 count, immunosuppressive therapy)

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Current CDC recommendations for the treatment of PID include both parenteral and oral regimens.

D. Oral regimens: each of these regimens should be continued for a total of 14 days. Patients on oral therapy ideally should be followed up within 72 hours, at which time they should show substantial clinical improvement. If no improvement, the patient should be re-evaluated to confirm the diagnosis and should be administered parenteral therapy in either an outpatient or inpatient setting. The addition of metronidazole should be considered, as anaerobic organisms are suspected in the etiology of the majority of cases. Metronidazole will also treat BV, which frequently is associated with PID.
   1. CDC-recommended oral regimen A
      a) Ceftriaxone 250 mg IM in a single dose PLUS
      b) Doxycycline 100 mg orally 2 times a day for 14 days
         With or Without
      c) Metronidazole 500 mg orally 2 times a day for 14 days
   2. CDC-recommended oral regimen B
      a) Cefoxitin 2 g IM in a single dose, and Probenecid, 1 g orally administered concurrently in a single dose PLUS
      b) Doxycycline 100 mg orally 2 times a day for 14 days
         With or Without
      c) Metronidazole 500 mg orally 2 times a day for 14 days
   3. CDC-recommended oral regimen C
      a) Other parenteral third-generation cephalosporin, PLUS
      b) Doxycycline 100mg orally 2 times a day for 14 days
         With or Without
      c) Metronidazole 500mg orally 2 times a day for 14 days

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E. Follow-up
   1. Patient should be re-examined within 72 hours and should demonstrate substantial clinical improvement (e.g., defervescence; reduction in rebound or direct abdominal tenderness; reduction in uterine, adnexal, and cervical motion tenderness).
   2. Patients who do not improve within this period usually require hospitalization, additional diagnostic tests, and possible surgical intervention.
   3. Some experts recommend rescreening for *C. trachomatis* and *N. gonorrhoeae* after completion of therapy, in women with documented infection due to these pathogens. The optimal time period for rescreening is 4-6 weeks. All women diagnosed with acute PID should be offered HIV testing.

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F. Parenteral regimens
   1. CDC-recommended parenteral regimen A
      a) Cefotetan 2 g IV every 12 hours, OR
      b) Cefoxitin 2 g IV every 6 hours, PLUS
      c) Doxycycline 100 mg orally or IV every 12 hours

2. CDC-recommended parenteral regimen B
    a) Clindamycin 900 mg IV every 8 hours PLUS Gentamicin loading dose IV or IM (2 mg/kg), followed by maintenance dose (1.5 mg/kg) every 8 hours. Single daily gentamicin dosing may be substituted.

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3. Alternative parenteral regimens
    a) Ampicillin/Sulbactam 3 g IV every 6 hours
    b) PLUS Doxycycline 100 mg orally or IV every 12 hours.
4. It is important to continue either regimen A or B or alternative regimens for at least 24 hours after substantial clinical improvement occurs and also to complete a total of 14 days therapy with:
    a) Doxycycline 100mg orally twice a day or Clindamycin 450mg orally four times a day.

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VI. Prevention

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A. Screening
    1. Screening recommendations
        a) Prevention of chlamydial infection by screening and treating at-risk women reduces the incidence of PID.
        b) CDC screening recommendations for chlamydia include: annual screening for sexually active women age 25 and under; screening of at-risk women over age 25; pregnant women in the first trimester or at the first prenatal visit if after the first trimester; and any patient diagnosed with another STD.
        c) Some specialists recommend screening and treating women with bacterial vaginosis prior to surgical abortion or hysterectomy.

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B. Partner management
    1. Male sex partners of women with PID should be examined and treated if they had sexual contact with the patient during the 60 days preceding onset of the patient's symptoms.
    2. Male partners of women who have PID caused by *C. trachomatis* or *N. gonorrhoeae* are often asymptomatic. Sex partners should be treated empirically with regimens effective against both of these infections, regardless of the apparent etiology of PID or pathogens isolated from the infected woman.
    3. The evaluation and treatment of partners is imperative because of the risk for reinfection and the strong likelihood of gonococcal or chlamydial infection in the sex partner.

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C. Reporting
   1. Report cases to the local STD program in states where PID reporting is mandated. Laws and regulations in all states require that persons with gonorrhea or chlamydia be reported to public health authorities by clinicians, labs, or both. Check with your state or local health department for reporting requirements in your area.

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D. Patient counseling and education should cover the nature of the disease, transmission issues, and risk reduction.
   1. Nature of the infection
      a) PID may be silent or overt with moderate or severe symptoms.
      b) A history of having had PID increases the risk for developing PID.
      c) The sequelae of PID are severe and include ectopic pregnancy, chronic pelvic pain, and infertility.
   2. Transmission issues
      a) Gonorrhea and chlamydia are efficiently transmitted from males to females via vaginal intercourse.
      b) Patients should abstain from intercourse until therapy is completed and until they and their sex partners no longer have symptoms.
   3. Risk reduction

      The clinician should:
      a) Assess the patient's behavior-change potential.
      b) Develop individualized risk-reduction plans with the patient for lasting results.
      c) Discuss prevention strategies (abstinence, monogamy with an uninfected partner, condoms, limit number of sex partners, etc.).
      d) Latex condoms, when used consistently and correctly, can reduce the risk of transmission of chlamydia and gonorrhea.

Discuss cessation of the practice of douching

CASE STUDY

[Slide 39]
Jane Wheels is a 24-year-old married female who presents to her nurse practitioner reporting lower abdominal pain, cramping, slight fever, and dysuria of 4 days duration.

History

- 24-year-old P 1001, LMP 2 weeks ago (regular without dysmenorrhea)
- She uses oral contraceptives (for 2 years).
- She reports a gradual onset of symptoms of lower bilateral abdominal discomfort, dysuria (no gross hematuria), abdominal cramping, and a slight low-grade fever in the evenings for 4 days. Discomfort has gradually worsened.
- Denies GI disturbances or constipation. Denies vaginal discharge. Took Tylenol for fever x 3.
- Jane states that she is happily married in a mutually monogamous relationship and plans another pregnancy in about 6 months. Husband does not use condoms. Reports that they engage in sexual intercourse approximately 2 times per week—no oral or rectal sex.
- Cooperative and good historian. Non-smoker, exercises regularly, no appetite changes, no travel outside the U.S., and no history of STDs. Reports occasional yeast infections. Douches regularly after menses and intercourse. Reports douching last this morning.

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Physical exam

- Vital signs: blood pressure 104/72, pulse 84, temperature 38°C, weight 132
- Neck, chest, breast, heart, and musculoskeletal exam within normal limits. No flank pain on percussion. No CVA tenderness.
- On abdominal exam the patient reports tenderness in the lower quadrants with light palpation. Several small inguinal nodes palpated bilaterally.
- Normal external genitalia without lesions or discharge.
- Speculum exam reveals minimal vaginal discharge with a small amount of visible cervical mucopus.
- Bimanual exam reveals uterine and adnexal tenderness as well as pain with cervical motion. Uterus anterior, midline, smooth and not enlarged.

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1. What should be included in the differential diagnosis?

   Correct responses include the following:
   - Urinary tract infection–Dysuria and abdominal tenderness can be consistent with a UTI.
   - Vaginitis--Ms. Wheels' history of douching this morning could account for the minimal vaginal discharge noted on exam, so vaginitis cannot be ruled out.
   - Pelvic inflammatory disease (PID)–While the clinical characteristics of patients with PID depend on the etiologic agent involved, CDC's minimum criteria for a

presumptive diagnosis of PID (uterine/adnexal or cervical motion tenderness) have been met.
- Pregnancy–Pregnancy or ectopic pregnancy should be ruled out in any woman of reproductive age with Ms. Wheels' symptoms.

2. Which laboratory tests should be performed or ordered?

Correct responses include the following:
- Vaginal saline wet mount with pH--This would assist in diagnosing vaginitis, which may not be obvious given her douching history. Also, the presence of WBCs on saline microscopy increases the specificity of PID diagnosis.
- Gonorrhea culture–This would be appropriate given the presumptive diagnosis of PID.
- Urine C/S–This would be appropriate given the history of dysuria and lower abdominal tenderness.
- Nucleic acid amplification test (NAAT) for chlamydia–A sensitive NAAT would be the first choice for diagnosing chlamydia.
- CBC with sedimentation rate and C-reactive protein–An elevated erythrocyte sedimentation rate and elevated C-reactive protein increases the specificity of PID diagnosis. However, these tests may not be indicated, may not be available, or may be too expensive.
- Pregnancy test–A sensitive pregnancy test to rule out ectopic pregnancy is necessary.

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Laboratory
Results of office diagnostics:
- Urine pregnancy test: negative
- Urine dip stick for nitrates: negative
- Vaginal saline wet mount: vaginal pH was 4.5. Microscopy showed WBCs >10 per HPF, no clue cells, no trichomonads and the KOH wet mount was negative for budding yeast and hyphae.

3. What is the presumptive diagnosis?

This patient meets the minimum criteria for a presumptive diagnosis of PID. The presence of WBCs on the saline microscopy increases the specificity of that diagnosis. Minimum criteria, in the absence of a competing diagnosis, justify presumptive treatment.

4. How should this patient be managed?

Given the clinical presentation of the patient, it is reasonable to consider oral / IM outpatient treatment for PID if she can return for follow-up in 48-72 hours.

5. What is an appropriate CDC-recommended therapeutic regimen for Ms. Wheels?

Correct responses include the following:

- Ceftizoxime plus doxycycline 100mg twice a day for 14 days plus metronidazole 500 mg orally twice a day for 14 days
- Cefoxitin 2 g IM PLUS probenecid 1 g orally plus doxycycline 100 mg orally twice a day for 14 days PLUS metronidazole 500mg orally twice a day for 14 days.
- Ceftriaxone 250 mg IM once PLUS doxycycline 100 mg orally twice a day for 14 days PLUS metronidazole 500mg orally twice a day for 14 days

The chosen regimen should cover the polymicrobial nature of PID (gonorrhea, chlamydia, and anaerobes) as the etiologic agent is often unknown at the time of treatment initiation. The results of the cervical cultures are not always predictive of the organisms implicated in upper genital tract disease. The organisms involved in bacterial vaginosis play a role in some cases of PID.

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Partner Management

Sex partner: Joseph (spouse)
First exposure: 4 years ago
Last exposure: 1 week ago
Frequency: 2 times per week (vaginal only)

6. How should Joseph be managed?

Joseph should be evaluated and treated for gonorrhea and chlamydia. Male sex partners of women with PID should be examined and treated if they had sexual contact with the patient during the 60 days preceding the onset of symptoms in the patient. Partner evaluation and treatment are imperative because of the risk for reinfection and the strong likelihood of gonococcal or chlamydial infection in the sex partner.

Male partners of women who have PID caused by *C. trachomatis* and/or *N. gonorrhoeae* are often asymptomatic. Therefore sex partners should be treated empirically with regimens effective against both of these infections, regardless of the apparent etiology of PID or pathogens isolated from the infected woman.

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Follow Up

On follow up 3 days later, Jane was improved clinically. The culture for gonorrhea was positive. The nucleic acid amplification test (NAAT) for chlamydia was negative. Joseph came in with Jane at follow-up. He was asymptomatic but did admit to a "one-night stand" while traveling. He was treated. They were offered HIV testing which they accepted.

7. Who is responsible for reporting this case to the local health department?

Laws and regulations in all states require that persons with gonorrhea or chlamydia be reported to public health authorities by clinicians, laboratories, or both. Check with your state or local health department for reporting requirements in your area.

8. What are appropriate prevention counseling recommendations for this patient?

Correct responses include the following:

- A history of PID increases the risk for developing a future episode of PID.
- Patients should abstain from intercourse until therapy is completed and until they and their sex partners no longer have symptoms.
- Latex condoms, when used correctly and consistently, can reduce the risk of transmission of chlamydia and gonorrhea.
- Sexually active women age 25 years of age and younger should be screened annually for chlamydia.
- Douching increases the risk of PID because it contributes to vaginal flora changes, epithelial damage, and disruption of the cervical mucous barrier, all of which can increase the likelihood of developing PID.
- Discuss individual risk reduction strategies, including monogamy with an uninfected partner and correct and consistent use of condoms.

TEST QUESTIONS

1. In the United States the number of hospitalized cases of PID is decreasing. What is the most likely reason for this decrease?
    a. Decrease in reporting of PID
    b. Increase in prevention messages
    c. **Increase in outpatient treatment of PID**
    d. Decreased incidence of PID

2. PID is associated with ascending spread of microorganisms to the upper genital tract. The fate of these organisms depends on all of the following factors **except**:
    a. Pathogenicity of organisms
    b. Host defense mechanisms
    c. **Length of vagina**
    d. Viability of organisms

3. All of the following are risk factors associated with PID **except**:
    a. Adolescence
    b. **Number of past pregnancies**
    c. Douching
    d. History of having an STD

4. Which of the following is **not** related to the increased risk of PID related to douching?
    a. Vaginal flora changes
    b. **Cervical cellularity**
    c. Epithelial damage
    d. Disruption of cervical mucous barrier

5. The most common etiologic agent associated with PID is:
    a. *N. gonorrhoeae*
    b. *C. trachomatis*
    c. Mycoplasma
    d. **PID is usually polymicrobial**

6. The most common clinical presentation of PID is:
    a. Severe pain
    b. No pain
    c. Profuse vaginal discharge
    d. Fever, chills, and cramping

7. All of the following are potential sequelae of untreated PID **except:**
    a. Ectopic pregnancy
    b. Tubal infertility
    c. Chronic pelvic pain

d. **Decreased ovulation**

8. The majority of cases of PID are:
    a. Symptomatic with moderate symptomatology
    b. Symptomatic with severe symptomatology
    c. Caused by a single organism
    d. Subclinical

9. What is the most sensitive sign of upper genital tract infection?
    a. Cervical motion tenderness
    b. Abdominal pain
    c. Fever
    d. **Adnexal tenderness**

10. Which of the following statements about PID is true?
    a. **It is a preventable cause of infertility.**
    b. It is an infection of the lower reproductive tract.
    c. Clinicians should “under diagnose” rather than “over diagnose” PID.
    d. Diagnosis of PID always requires hospitalization.

11. CDC-recommended criteria for hospitalization of women with PID include all of the following except:
    a. Non-response to therapy
    b. **Adolescence**
    c. Tubo-ovarian abscess
    d. Pregnancy

12. CDC recommends empiric treatment for PID if which of these criteria are present?
    a. Bloody discharge and fever
    b. **Uterine or adnexal tenderness or cervical motion tenderness**
    c. Fever and supra pubic pain
    d. WBCs and clue cells on wet prep examination

13. The CDC recommendation for parenteral treatment of PID includes a cephalosporin plus which of the following?
    a. Clindamycin
    b. Metronidazole
    c. **Doxycycline**
    d. Ofloxacin

14. Which of the following is included in the CDC-recommended oral treatment regimen for PID?
    a. Azithromycin 500 mg once
    b. Doxycycline 100 mg 2 times a day for 10 days
    c. **Doxycycline 100 mg 2 times a day for 14 days**

d. Metronidazole 2 g once

15. After completion of parenteral therapy for PID, one should continue oral therapy to complete a total of _____days of therapy?
    a. 7
    b. **14**
    c. 21
    d. 28

16. PID prevention strategies include which of the following?
    a. Chlamydia screening of all sexually active women ages 25 and under on an annual basis
    b. Screening and treating women with bacterial vaginosis prior to surgical abortion or hysterectomy
    c. Encouraging abstinence, monogamy with an uninfected partner, condom use, and limiting number of sex partners
    d. **All of the above**

17. Patient education regarding PID should include which of the following messages?
    a. PID may be silent or have moderate to severe symptoms.
    b. Consequences of PID may include ectopic pregnancy, infertility, and pelvic pain.
    c. Having a history of PID increases the risk for subsequent PID.
    d. All of the above.

18. Management of sex partners of women with PID includes which of the following strategies?
    a. **Partners should be examined and treated if they had sexual contact with the patient during the 60 days preceding onset of her symptoms.**
    b. Only partners who are symptomatic and who are current partners should be treated.
    c. Partners do not need to be treated if they were not the last reported sex partner of the patient.
    d. All partners should be treated for chlamydia only.

19. Which of the following statements is true?
    a. PID reporting is mandated in all states.
    b. Routine screening for *C. trachomatis* is not recommended.
    c. **Latex condoms can reduce the risk of transmission of gonorrhea and chlamydia.**
    d. The sequelae of PID may include chronic neurologic symptoms.

RESOURCES

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Websites and Other Resources

1. CDC, Division of STD Prevention: www.cdc.gov/std
2. National Network of STD/HIV Prevention Training Centers: http://depts.washington.edu/nnptc/
3. 2006 CDC STD Treatment Guidelines (including downloadable version for Palm devices): http://www.cdc.gov/STD/treatment/
4. STD information and referrals to STD clinics
   CDC-INFO
   1-800-CDC-INFO (800-232-4636)
   TTY: 1-888-232-6348
   In English, en Español
5. CDC National Prevention Information Network (NPIN): www.cdcnpin.org
6. American Social Health Association (ASHA): www.ashastd.org